



Translation of the specification of DE 3828798 A1

#### Filament tensioner

##### Description

Filament tensioners for processing brittle filament material such as carbon or glass fibers with the least strain on the filament.

Magnetic filament tensioners (also called filament brakes) are known, which possess a virtually straight filament passage between the brake roller 1 and an elastic press roller 2. The short contact path at the squeezing point 3 requires a relatively high pressing force between the two rollers 1 and 2 because additionally a significant flexing force needs to be overcome.

A third diverting roller 4 with an axis 5 inclined toward the front makes it possible that the filament 6' to be tensioned is guided a second or multiple time between the pair of rollers 1 and 2 without slipping sideways on the smooth rollers (without grooves), i.e. with a small parallel displacement 7 with respect to the first run-in of the filament 6, at just about one tenth of the pressing force compared to just the single passage. This has a gentle effect on the brittle filament structure.

The axis 5 of the diverting roller 4 is arranged approximately perpendicularly to the course of the filament between the rollers 1 and 4. The dimension of the angle 8 determines the distance 7 of the two filaments 6 and 6' between the rolls 1 and 2 (Fig. 3). It is also dependent on the roller distance and their diameters.

Translation of DE-U 9110360, page 5, 2<sup>nd</sup> paragraph

The thread running drum 10 has a hollow, pot-like shape. It consists of a pot-like drum body with a bottom 17, with a wall 19 connected to it on the outside. The wall 19 forms a thread looping surface 20 and consists essentially of two conical rings onto which the thread F runs according to the figures. The wall of the thread running drum 10 in the area of the thread looping surface 20 and the roller wall, respectively, has the same thickness everywhere. The wall thickness is relatively thin. The thread running roll 10 consists of light metal and the previously described shape of the wall 19 contributes to a high dimensional stability of the roll 10 at a low weight and a small rotational moment of inertia.